DOCUMENT RESUME

ED 382 177 IR 017 114

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TITLE Restructuring School: What Is Changing in Classrooms? How Does Technology Fit?
INSTITUTION New York State Education Dept., Albany. Office of Instruction and Program Development.
PUB DATE Jun 94
NOTE 11p.
PUB TYPE Information Analyses (070)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Conventional Instruction; *Curriculum Development; *Educational Assessment; *Educational Change; Educational Development; Educational Philosophy; *Educational Technology; Elementary Secondary Education; Excellence in Education; Nontraditional Education; *School Restructuring; Traditional Schools
IDENTIFIERS *Role of Technology

ABSTRACT

Despite the world of rapid change, many have argued that, compared with other social systems, schooling has not changed appreciably in the past century. In an attempt to address this problem, educators, in conjunction with parents and business, have begun to push for the restructuring of time, space, organization, resources, and focus of schools. The tables presented in this paper will provides some insight into school restructuring by contrasting traditional and restructured schools. The tables point out the aspects of schooling which can be restructured using the support of technology, and focus on specific items related to curriculum, instruction and learning, and assessment. This is neither an exhaustive list of school restructuring dimensions nor a complete definition of technology's role. The tables are designed to help define what restructuring means, and what the support role of technology might be in restructuring. They are also designed to encourage thinking about how to translate theory into practice as work progresses toward the improvement of learning environments for all students. Tables are provided for curriculum, teaching and learning, and assessment, and are divided into information on the traditional classroom, restructured classroom, and role of technology. (MAS)

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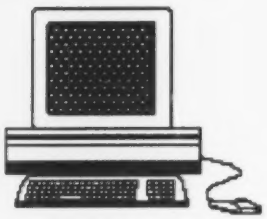
RESTRUCTURING SCHOOL

What is Changing in Classrooms? How Does Technology Fit?



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Restructuring School

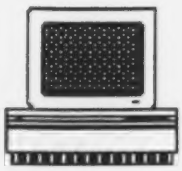
What is Changing in Classrooms? How Does Technology Fit?

As we look toward the turn of the century, the major function of our educational system is to prepare students to be productive members of society in the 21st Century. But the context within which schooling takes place has changed dramatically. The world which students face today is vastly different from that which today's adults experienced when they were in school. Today's world is a world of global competitiveness and rapid social and technological change. This world requires independent thinking, continual learning, collaboration as a learning community, the ability to filter information, and the ability to use technology tools.

However, despite the world of rapid change, many have argued that schooling has not changed appreciably in the past century, compared with other social delivery systems. Some reformers go so far as to say that the last significant change in schools probably came approximately 500 years ago with the introduction of the printing press. As we move toward the millennium, schools are confronting the need to change. In an attempt to address the requirements of the world of the 21st Century, educators,

in conjunction with parents and business, have begun to push for the restructuring of time, space, organization, resources and focus of schools. As school restructuring and reform efforts like New York's *New Compact for Learning* have gained momentum, aspects of teaching and learning have begun to be examined in an attempt to better equip students for the world in which they will live.

In struggling with the translation of the goals and concepts of this restructuring, and what it really means for us and for our students, it may be helpful to contrast traditional education with restructured schools. To do this most meaningfully, we should examine the critical educational functions of curriculum, instruction, learning and assessment and consider how they differ between the two points of contrast, traditional education and restructured education.



If economic competitiveness depends on independent thinking, continual learning, collaboration, the ability to filter information and the ability to use technology tools; then we need to make technology a part of all schooling experiences. This is even more true because technology is the ubiquitous context in which all learners will function in the next millennium Technology is also a powerful vehicle for supporting school restructuring. By focusing on the important aspects of schooling--curriculum, instruction, learning and assessment--and by identifying how technology can help to support change toward a restructured classroom, we can take advantage of this powerful support vehicle. The failure

of our schools to be successful in preparing our students to function as world citizens, and our failure to effectively use technology to change teaching and learning may be closely interrelated.

The following tables will provide some insight into school restructuring by contrasting traditional and restructured schools. The tables point out aspects of schooling which can be restructured using the support of technology. These tables focus on specific items related to curriculum, instruction and learning, and assessment. It is important to note that this is neither an exhaustive list of school restructuring dimensions nor a complete definition of technology's role. The tables are designed to help define what restructuring means, and what the support role of technology might be in restructuring. They are also designed to encourage thinking about how to translate theory into practice as we work to improve the learning environment for all our students.

Curriculum

Traditional Classroom	Restructured Classroom	Role of Technology
Textbooks and pre-packaged materials	Primary source materials and real world projects	CD-ROM's and Internet access to resource materials
Subject oriented. Emphasis on covering content domain	Skill oriented. Opportunity to explore and develop understanding of particular areas through projects and themes	Multimedia projects that integrate information from many sources. Contact with real practitioners via networks
Focus on isolated facts, recognition and recall	Application of analysis and synthesis within a real project	Network collaboration, use of computer tools, probes, simulations
Text focused materials	Multimedia focus	CD-ROM, multimedia, simulations.
Individual disciplines	Interdisciplinary-- focus on integration through themes and projects	Access to information and resources via network-- interaction with real scholars and projects. Multimedia interactive systems.

Rigid curriculum outlines, based on disciplines, drive instruction	Student understanding drives instruction	Networking and computer tools

Teaching and Learning

Traditional Classroom	Restructured Classroom	Role of Technology
Students as receiver and consumer of information. Passive learning. Didactic learning theory where teaching is planned, structured and delivered by the teacher. Teaching here is equated with telling, learning is equated with listening, and knowledge is conceived of as being delivered or poured into students	Students as active constructor / producer of information. Hands on learning Constructivist learning theory where students build relationships and collect new information as they interact with the world. The teacher acts as the facilitator.	Technology tools (e.g. databases and text processing) for student projects. Simulations and probes.

Individual learning	Individual as well as collaborative learning--social construction of knowledge	Technology tools including networking allow production and interaction, presentation and sharing
Teacher-centered and controlled. Role of teacher is that of "a sage on a stage"	Student-centered, student empowered with greater control. Role of teacher is that of "a guide on the side" or facilitator.	Technology tools, simulations and telepresence
Teacher presents material--teacher as worker	Student creates and presents material--student as worker with teacher facilitating learning	Network projects. Involvement in community projects. Use of technology tools to create and present information.
Isolated classrooms and teachers	Cooperative learning. Teaching and learning community	Group software such as electronic mail and shared writing environments.
Teaching to average level of class. Verbal and textual presentation	All students engaged in learning at their own level. Multi-modal teaching to diverse learning modalities	Real world network projects and computer tools. Multimedia including interactive video.

School separate from real world	School part of real world of work	Students interact via network in mentoring project with scientists. Telepresence, simulations and virtual reality.

Assessment

Traditional Classroom	Restructured Classroom	Role of Technology
Paper and pencil, multiple choice tests. Explicit assessment at point in time.	Performance-based, more authentic assessment. Continuous assessment of progress which is embedded into learning. Observations	Simulations with options for student response. Application of knowledge in real projects.
Focus on facts and recall--content which is covered.	Focus on organization and presentation of knowledge-- emphasis on higher level skills of analysis, synthesis and application of knowledge	Capturing exemplars of student work into electronic portfolios

Target for assessment is the teacher or undefined test makers	Focus is on peer review, parents or reviewing audience	Networks for sharing student work and multimedia presentation systems
Individual performance assessed	Both individual and group performance assessed--collaboration part of assessment	Computer groupware, including networks

It is important to remember that technology is not an end in itself. It is a means to an end. Technology should help to serve our school reform efforts. Technology is only valuable and effective when it supports our overall educational goals--when it helps us to restructure our teaching and learning environments. We need to be clear on our educational goals and standards, and we need to assess how technology can help us to meet those goals. In the end, we cannot become enraptured with technology. Otherwise we will miss the opportunity to improve schools with the powerful teaching and learning tools which technology can provide.

We welcome your thoughts and comments on this issue of restructuring and technology. How do you view the restructuring effort, and how do you see technology fitting into and supporting this effort? What role can technology play in making the *New Compact for Learning* a reality? Send your comments to:

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